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KITH AND KIN INTERNATIONAL COLLEGE

*7/11 Kaoli Olusanya Street, Owode Ibeshe, Ikorodu, Lagos State.*

THIRD TERM EXAMINATION 2024/2025 ACADEMIC SESSION



|  |  |
| --- | --- |
| **NAME** |  |
| **SUBJECT** |  **MATHEMATICS** | **CLASS** | **SS** 1 | **DURATION** | **1 ½ HOUR** |

***Answer all the five questions in this part. All questions carry equal marks. [ 25 marks]***

1. **Out of** 120 customers in a shop, 45 bought bags and shoes. If all the customers bought either bags or shoes and 11 more customers bought shoes than bags:
2. Illustrate this information in a diagram;
3. Find the number of customers who bought shoes;
4. Calculate the probability that a customer selected at random bought bags ***WAEC 2017*** 5marks
5. **A bucket** is 12cm in diameter at the bottom, 20cm in diameter at the open end and 16cm deep. If the bucket is filled with water and emptied into a cylindrical tin of diameter 28cm. calculate the depth of water in the tin. (take $π= \frac{22}{7}$) ***GCE 2008*** 5marks
6. **Using** a ruler and a pair of compasses only:
7. Construct triangle XYZ such that |XY|= 10cm, <XYZ =300 and < YXZ=450;
8. Locus l1 of points equidistant from Y and X
9. Locus l2 of points equidistant from XY through Z.
10. Locate point M, the point of intersection of l1and l2.
11. Measure <ZMY ***WAEC 2016*** 5marks

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Height  | 3 | 4 | 5 | 6 | 7 | 8 |
| Number of trees | 4 | 6 | 4 | 5 | 6 | 2 |

The table shows the height of teak trees harvested by a farmer.

 a. find the mean height.

 b. calculate, correct to one decimal place, the

 (i) Mean

 (ii) Standard deviation ***WAEC 2023***

1. a. If 9(1-x) =27y and x-y= -1$\frac{1}{2}$ find the value of x+y. WAEC 2011

b. Given that 543n = 244n + 255n , find the value of n. 5marks

**PART II**

 ***Answer question 6 and any TWO other questions from this part. [ 25 marks****]*

1. (a) Copy and complete the table of values for the relation y= 1- 4 Cos x.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | 00 | 300 | 600 | 900 | 1200 | 1500 | 1800 | 2100 | 2400 | 2700 | 3000 |
| y | -3.0 |  |  | 1.0 |  |  |  | 4.5 |  |  | -1.0 |

(b) Using scales of 2cm to 300 unit on the x axis and 2cm to 1 unit on the y axis, draw the graph of y= 1- 4 Cos x for 00 $\leq x\leq $ 3000

(c ) use the graph to , ( i) solve the equation y= 1- 4 Cos x (ii) find the value of y when x=1050 (iii) find x when y= 1.5 ***WAEC 2012***

1. (a) solve the simultaneously question

 $\frac{1}{x}+\frac{1}{y}=5 ; \frac{1}{y}-\frac{1}{x}=1 $ ***WAEC 2014***

 (b) The curved surface area of a cone is 242 cm2. If the slanting height is 4cm more than the radius, calculate, correct to one decimal place, the: (i) radius (ii) height (iii) volume of the cone [Take π = 22/7] ***WAEC 2021***

 8. Calculate the total surface area of the figure below.

 

 9. (a) Given that sin x = 5/13 , 00 ≤ x≤ 900, find $ \frac{\cos(x-2sinx)}{2\tan(x)}$

(b) If the angle of elevation of the top Q of the mountain from P and R are 300 and 700 respectively and PR = 500m, calculate correct to 3 significant figures: (i) QP (ii) the height of the mountain.

10. The table gives the frequency distribution of marks obtained students in an examination.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks | 0-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | 80-89 | 90-99 |
| Freq. | 7 | 11 | 17 | 20 | 29 | 34 | 30 | 25 | 21 | 6 |

(a) Construct a cumulative frequency Curve for the distribution (b) using the curve find the median mark

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| **NAME** |  |
| **SUBJECT** |  **MATHEMATICS** | **CLASS** | **SS** 1 | **DURATION** | **1 ½ HOUR** |

 ***Part A: Multiple choice ( 50 marks)***

Answer all questions: ***Each*** question is followed by ***four*** options lettered A to D. Find out the correct option for ***each*** question and ***shade in pencil*** on your answer space which bears the same letter as the option you have chosen. Give only ***one*** answer to ***each*** question.

1. Correct 0.007985 to three significant figures

A. 0.0109

 B. 0.0800

 C. 0.00799

 D. 0.008

2. Simplify (11two)2

 A. 1001two

 B. 1101two

 C. 101two

 D. 10001two

3. solve: $2^{\sqrt{2x}}$+1 = 32

 A. 13

 B. 24

 C. 12

 D. 11

4. Find the equation whose roots are 2 and -3$\frac{1}{ 2}$ .

 A. 2x2 + 3x + 14 =0

B. 2x2 + 5x + 7 =0

 C. 2x2 + 5x - 7 =0

 D. 2x2 + 3x - 14 =0

5. A man bought 220 mangoes at #5x. He sold each for 3x kobo and made a gain of #8. Find the value of x.

 A. 2

 B. 5

 C. 6

 D. 10

6. Convert 101101two to a number in base ten.

 A. 61

 B. 46

 C. 45

 D. 44

7. Expand (2x – 3y)(x-5y).

 A. 2x2 + 13xy – 15y2

 B. 2x2 - 13xy – 15y2

C. 2x2 + 13xy + 15y2

 D. 2x2 - 13xy + 15y2

B

700

a

t

B

A

8.

D

In the diagram, <ABC and <EDF =700. Find the value of t.

 A. 700

 B. 1650

 C. 1400

 D. 1100

9. A solid brass cube is melted and recast as a solid cone of height h and base radius r. if the height of the cube is h, find r in term of h.

 A. r = h

 B. r = $\sqrt{\frac{3h}{π}}$

 C. r = $πh$

 D. r = h $\sqrt{\frac{3}{h}}$

10. find, correct to two decimal paces, the mean of $1\frac{1}{2}, 2\frac{2}{3}, 3\frac{3}{4}, 4\frac{4}{5}, and 5\frac{5}{6}$

 A. 3.71

 B. 3.70

 C. 3.69

 D. 3.72

11. a cyclist moved at a speed of xkm/h for 2 hours. He then increased his speed by 2km/h for the next 3 hours.

 If the total distance covered is 36 km, calculate his initial speed.

 A. 12km/h

 B. 3km/h

 C. 4 km/h

 D. 6 km/h

12. a cone has a base radius of 8cm and height 11cm. calculate, correct to 2d.p., the curved surface area.

 A. 341.98cm2

 B. 276.57cm2

 C. 201.14cm2

 D. 477.71cm2

13. An arc of a circle of radius 14cm subtends angle 3000 at the center. Find the perimeter of the sector formed by the arc. (Take π=22/7).

 A. 14.67cm

 B. 42.67cm

 C. 101.33cm

 D. 513.33cm

14. if X = {2, 3, 4, 6} and Y = {y:y is a factor of 24} are subsets of $μ=\left\{1, 2, 3, …..,10\right\}. find X∩Y.$

 A. {2,3,4,6}

 B. {1,2,3,4,6}

 C. {2,3,4,6,8}

 D. {1,2,3,4,6,8}

15. The angle of elevation of the top of a cliff 15 meters high from a landmark is 600. How far is the landmark from the foot of the cliff? Leave your answer in surd form.

 A. 15$\sqrt{3}$m

 B. 15$\sqrt{2 }$m

 C. 10$\sqrt{3}$m

 D. 5$\sqrt{3}$m

16. The implication x$\rightarrow y$ is equivalent to

 A. $\~y \rightarrow \~ x$

 B. $y \rightarrow \~ x$

 C. $\~x \rightarrow \~ y$

 D. $y \rightarrow x$

17. a solid cuboid has a length of 7cm, a width of 5cm, and a height of 4cm. calculate its total surface area.

 A. 280cm2

 B. 166cm2

 C. 140cm2

 D. 83cm2

18. A man is five times as old as his son. In four years’ time, the product of their ages would be 340. If the son’s age is y, express the product of their ages in term of y

 A. 5y2 – 16y -380 =0

 B. 5y2 – 24y -380 =0

 C. 5y2 – 16y - 324 =0

 D. 5y2 – 16y -324 =0

19. if tan y is positive and sin y is negative, in which quadrant would y lie?

 A. First and third only

 B. First and second only

 C. Third only

 D. Second only

20. The diameter of a sphere is 12 cm. Calculate, correct to the nearest cm3, the volume of the sphere.[take $π= \frac{22}{7}$]

 A. 904 cm3

 B. 908 cm3

 C. 905 cm3

 D. 906 cm3

21. Solve for x in the equation: $\frac{1}{x}$ + $\frac{2}{3x}$ = $\frac{1}{3}$

 A. 5

 B. 4

 C. 3

 D. 1

22. Simplify; $\frac{54k^{2}-6}{3k+1}$

 A. 6(1- 3k2)

 B. 6(3k2-1)

 C. 6(3k- 1)

 D. 6(1- 3k)

23. The interquartile range of distribution is 7. If the 25th percentile is 16, find the upper quartile.

 A. 35

 B. 30

 C. 23

 D. 9

24. Find the least value of x which satisfies the equation 4x = 7(mod 9)

 A. 7

 B. 6

 C. 5

 D. 4

25. The curved surface area of a cylindrical tin is 704cm2. If the radius of its base is 8cm, find the height. (Take π =22/7).

 A. 14cm

 B. 9cm

 C. 8cm

 D. 7cm

26. The lengths of the minor and major arcs of a circle are 54cm and 125cm respectively. Calculate the angle of the major sector.

 A. 3060

 B. 2520

 C. 2460

 D. 2340

27. If Cos (x + 40)0 = 0.0872, what is the value of x?

 A. 850

 B. 750

 C. 650

 D. 450

28. The sum of the interior angles of a regular polygon is 18000. How many sides have the polygon?

 A. 16

 B. 12

 C. 10

 D. 8

29. A side and diagonal of a rhombus are 10cm and 12cm respectively. Find its area.

 A. 20cm2

 B. 24cm2

 C. 48cm2

 D. 96cm2

30. Simplify, correct to three significant figures, (27.63)2 – (12.37)2

 A. 614

 B. 612

 C. 611

 D. 610



The bar chart shows the frequency distribution of marks scored by students in a class test. Use the bar chart to answer questions 31 – 33.

31. How many students are in the class?

 A. 10

 B. 24

 C. 25

 D. 30

32. Calculate the mean of the distribution

 A. 6.0

 B. 3.0

 C. 2.4

 D. 1.8

33. What is the median of the distribution?

 A. 2

 B. 4

 C. 6

 D. 8

34. Express 3 - $\frac{x-y}{y}$ as a single fraction.

 A. $\frac{3xy}{y}$

 B. $\frac{x-4y}{y}$

 C. $\frac{x+4y}{y}$

 D. $\frac{4y-x}{y}$

35. Tdhe total surface area of a solid cylinder is 165cm2. Of the base diameter is 7cm, calculatre its height. [take $π=\frac{22}{7}]$

 A. 7.5 cm

 B. 4.5 cm

 C. 4.0 cm

 D. 2.0 cm

36. Simplify 2$\frac{1}{3}$ ÷ 2$\frac{2}{3}$ x 1$\frac{1}{7}$

 A. 0

 B. 1

 C. 2

 D. 3

37. Which of the following is equal to $\frac{72}{125}$ ?

 A. $\frac{2^{3}X3^{2}}{5^{3}}$

 B. $\frac{2^{4}X3^{1}}{5^{3}}$

 C. $\frac{2^{3}X3^{2}}{5^{3}}$

 D. $\frac{2^{5}X3^{2}}{5^{3}}$

38. Express $\frac{8.75}{0.025}$ in standard form.

 A. 3.5 x 10-3

 B. 3.5 x 10-2

C. 3.5 x 101

D. 3.5 x 102

39. Evaluate: $\frac{27^{1/3}}{16^{1/4}}$

 A. 6/8

 B. 5/4

 C. 4/7

 D. 3/2

40. Simplify: $16^{5/4}$ X $2^{-3}$ X $3^{0}$

 A. 0

 B. 2

 C. 4

 D. 10

41. Simplify: 2log36 + log312 - log316

 A. 2

 B. 3

 C. 2 - 2log32

 D. 3 - log32

42. What is the number whose logarithm to base 10 is 3.4771?

 A. 3.0

 B. 0.3

 C. 0.003

 D. 0.0003

43. A house bought for #100,000 was later auctioned for #80,000. Find the loss percent.

 A. 20%

 B. 30%

 C. 40%

 D. 50%

44. The total surface area of a hemisphere is 75 $π$ cm2. Find the radius.

 A. 5.0cm

 B. 7.0cm

 C. 8.5cm

 D. 12.0cm

45. Given that 2p – m = 6 and 2p +4m =1, find the value of (4p +3m).

 A. 1

 B. 3

 C. 5

 D. 7

46. The angles of a polygon are x, 2x, 2x,(x+300) and (x-100). Find the value of x.

 A. 450

 B. 840

 C. 850

 D. 950

47. If 8x -4= 6x -10, find the value of 5x.

 A. -35

 B. -15

 C. -3

 D. 3

48. Find the quadratic equation whose roots are 3 and 2/3.

 A. x2 – $\frac{11}{3}$x +6 =0

 B. x2 –11x +6 =0

 C. x2 –11x -2 =0

 D. 3x2 –11x +6 =0

49. The volume of cylinder tank, 10m high is 385m2. Find the diameter of the tank.

 A. 14m

 B. 10m

 C. 7m

D. 5m

50. For what value of x is the expression $\frac{x-5}{x(x-1)}$ not defined?

 A. 0 or 5

 B. -5 0r 5

 C. -11 or 5

 D. 0 or 1